UNITED STATES PATENT AND TRADEMARK OFFICE

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10/551,199	10/06/2006	Toshiaki Kakutani	MIPFP178	4060

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>16 March 2010</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1,2,4-6,8,20-22,24-26,28,30,31 and 33</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1,2,4-6,8,20-22,24-26,28,30,31 and 33</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments with respect to claims 1, 5, 20, 22, 24-26, 28, 30,

31, and 33 have been considered but are moot in view of the new ground(s) of

rejection.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

3.   Claims 24, 25, and 26 are rejected under 35 U.S.C. 101 because the

claimed invention is directed to non-statutory subject matter. Claims are

directed to "an image output control program stored on a computer readable

medium". Claims 24, 25, and 26 are drawn to a computer readable medium

covering both transitory and non-transitory embodiments may be amended to

narrow the claim to cover only statutory embodiments to avoid a rejection

under 35 USC 101 by adding the limitation "non-transitory" to the claim.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and
> distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claims 1, 2, 4-6, 8, 20-22, 24-26, 28, 30, 31, and 33 rejected under 35

U.S.C. 112, second paragraph, as being indefinite for failing to particularly

point out and distinctly claim the subject matter which applicant regards as

the invention. Claims 1, 2, 4-6, 8, 20-22, 24-26, 28, 30, 31, and 33 read "the

dither matrices comprises a plurality of threshold values selected from among

various types of threshold values, the number of which is greater than the

number of the pixels included in each of the pixel groups, and maps the

plurality of threshold values in a two-dimensional array." Specifically "the

number of which is greater than the number of the pixels included in each of

the pixel groups" is unclear.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived by
> the manner in which the invention was made.

7.   Claims 1, 2, 4-6, 8, 20-22, 24-26, 28, 30, 31, and 33 are rejected under

35 U.S.C. 103(a) as being unpatentable over Zhang (US Patent No. 5359430) in

view of Troxel (US Patent No. 5124803).

Regarding claims 1, 5, 20, 22, 24-26, 28, 30, 31, and 33, Zhang'430

teaches an image output control system (digital image processing system, 7,

Fig. 1) comprising an image processing device (image processor, 9, Fig. 1) that

makes image data subjected to a preset series of image processing (the steps of

Fig. 2A) and an image output device (receiver, 21, Fig. 1) that creates dots

according to a result of the preset series of image processing to output an

image (the steps of Fig. 10), said image processing device comprising: a dot

number specification module (comparator, 11, Fig. 1) that specifies a number

of dots to be created in each of the pixel groups, said number of dots being

specified based on a result of comparison between a tone value of each of the

pixels constituting each of the pixel groups and a corresponding threshold

value mapped in each of dither matrices, which is provided to each of the pixel

groups (threshold screening involves comparing the pixel values of blocks of

the contone image with cell values of a threshold array and turning on pixels

based on if pixel values are greater than or equal to the cell value of the

threshold abstract); a number data supply module (memory storing each count

value for the multiple blocks in the image, column 4, line 8-10) that supplies

dot number data representing the number of dots specified with regard to each

pixel group to said image output device (block counts are received from

memory in step 132, Fig. 10, column 6, lines 33-35), said image output device

(receiver, 21, Fig. 10) comprising: a number data receiving module

(decompressor, 23, Fig. 10) that receives the dot number data with regard to

each pixel group (Step 132, Fig.10); a priority order selection module that

selects a priority order of pixels for dot formation in each pixel group (module

in the receiver gets the gray patterns corresponding to block counts, 136, Fig.

10); a pixel position determination module (image controller, 25, Fig. 10) that

determines position of each dot-on pixel included in each pixel group, based on

the received dot number data and the selected priority order (using the block

counts that are received, the image controller recreates the second halftone

image, column 6, lines 37- 38); and a dot formation module (output system,

29, Fig. 10) that actually creates a dot at the determined position of each dot-

on pixel (step 140, Fig. 10) but fails to expressly teach a pixel group generation

module that sequentially extracts, from the image, a plurality of pixel groups,

each of the pixel groups comprising a predetermined number of pixels selected

from among pixels constituting the image and a dot number specification

module wherein each of the dither matrices comprises a plurality of threshold

values selected from among various types of threshold values, the number of

which is greater than the number of the pixels included in each of the pixel

groups, and maps the plurality of threshold values in a two-dimensional array.

Troxel'803 teaches a pixel group generation module (processor generating

halftone screen tile shown in Fig. 4) that sequentially extracts, from the image,

(automated method for generating the angled digital halftone screen tiles,

column 6, lines 35-37) a plurality of pixel groups (notice fully the Fig. 10A

showing an entire image divided into groups), each of the pixel groups

comprising a predetermined number of pixels (each halftone screen tile

contains a predetermined number of pixels column 6, lines 35-40) selected

from among pixels constituting the image (the divided screen dots are made

whole when the screen tiles are combined to form a complete halftone screen

column 12, lines 20-25) and wherein each of the dither matrices 80 Fig. 9b

comprises a plurality of threshold values selected from among various types of

threshold values (dither threshold values shown as integers 1-16 in Fig. 9b),

the number of which is greater than the number of the pixels included in each

of the pixel groups (the numbers in the threshold are 1-16 are greater than the

numbers of the pixel groups going from 0-7) and maps the plurality of

threshold values in a two-dimensional array (threshold array column 12, line

33).

Hence the prior art includes each element claimed, although not

necessarily in a single prior art reference, with the only difference between the

claimed invention and the prior art being the lack of actual combination of the

elements in a single prior art reference. In combination Zhang'430 performs

the same function as it does separately of converting contone images into

halftone images. Troxel'803 performs the same function as it does separately of

pixel group generation.

Therefore on of ordinary skill in the art could have combined the

elements as claimed by known methods, and that in combination, each

element merely performs the same function as it does separately. The results of

the combination would have been predictable and resulted in modifying the

invent of Zhang'430 to include pixel group generation as disclosed by

Troxel'803 thereby allowing assignment of pixels to screen dots to minimize

moiré patterning (Troxel'803 column 3, lines 29-33)

Regarding claims 2 and 6, Zhang'430 teaches wherein said priority order

selection module selects one priority order for each pixel group, among multiple

priority orders prepared in advance (Fig. 4a-4q, shows the prepared priority

orders).

Regarding claims 4, 21, and 25, Zhang'430 teaches wherein said priority

order selection module divides the dither matrix referred to for the dot number

specification into multiple groups corresponding to multiple pixel groups

(arrays column 3, lines 13-16), specifies a priority order of pixels in each pixel

group based on a result of comparison between the image data of respective

pixels included in the pixel group and corresponding threshold values (column

4, lines 5-10), and stores the specified priority orders of the multiple pixel

groups as the multiple priority orders, said priority order selection module

selecting one priority order corresponding to a position of each pixel group in

the image, among the multiple priority orders based on the dither matrix

(notice each gray pattern of the set 50 is a 4x4 array having a unique number

of pixels illuminated, column 3, lines 27-30).

Regarding claim 8, Zhang'430 teaches wherein said number data

receiving module receives the dot number data in each pixel group of plural

pixels that are adjacent to one another and have a preset positional relation (as

in Fig. 5).

Conclusion

8.   Applicant's amendment necessitated the new ground(s) of rejection

presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as

set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire

THREE MONTHS from the mailing date of this action. In the event a first reply

is filed within TWO MONTHS of the mailing date of this final action and the

advisory action is not mailed until after the end of the THREE-MONTH

shortened statutory period, then the shortened statutory period will expire on

the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In

no event, however, will the statutory period for reply expire later than SIX

MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications

from the examiner should be directed to LAWRENCE E. WILLS whose

telephone number is (571)270-3145. The examiner can normally be reached

on Monday-Friday 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, King Poon can be reached on 571-272-7440. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

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9197 (toll-free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/
Supervisory Patent Examiner, Art Unit 2625

LEW
June 18, 2010